

Water Supplies Department

**Development and Implementation
of the Hong Kong Voluntary Water Efficiency Labelling Scheme (WELS)**

Draft Framework of the Voluntary WELS on Water Closets

Framework
of Voluntary Water Efficiency Labelling Scheme (WELS) on Water Closets

1 Overview

- 1.1 The Water Efficiency Labelling Scheme (WELS) on Showers for Bathing, Water Taps, Washing Machines, Urinal Equipment and Flow Controllers were launched on 10 September 2009, 2 September 2010, 31 March 2011, 29 March 2012 and 7 August 2014 respectively. To maintain its continuous support for sustainable development and the momentum of WELS to promote public's awareness of water conservation, Water Supplies Department (WSD) is going to extend the WELS coverage to water closets.
- 1.2 At present, the WELS has been implemented in Australia, Japan, New Zealand, Singapore, Taiwan, the U.K. and the U.S. on either a voluntary basis or a mandatory basis to exert effort in saving water resource. An overview on their WELS implementation is shown in Annex for reference.

2 WELS on "Water Closets"

- 2.1 This WELS on "Water Closets" would be implemented on a voluntary basis for the participation by manufacturers, importers and other related parties in the water closet business. The scheme would be operated under either a Grading Type or Recognition Type system subject to the market survey results. The scheme, tentatively, includes toilet suite (one-piece water closet pan), water closet pan only, water closet cistern only and combination of a water closet and cistern (close-coupled suite). They could be applied for registration under this scheme if they can meet the statutory and performance requirements specified in the scheme. Flushometer valve, a flushing device without a flushing cistern, will not be included in the Scheme.

3 Implementation Schedule

- 3.1 Registration under the scheme would commence from late 2017 and would expire in late 2019 when re-registration may be necessary. A review exercise may be conducted in mid 2019 to facilitate the consideration whether revision of the scheme is required by late 2019. This exercise would provide WSD an opportunity to review the market development, the

technology advancement on the water closets, the development/revision of relevant testing standards and the scheme's operating procedures.

- 3.2 If the scheme is revised, new applications after late 2019 have to meet the revised scheme requirements for registration. The existing registrations shall be reviewed accordingly. The participants shall submit relevant material to WSD for re-registration during a transitional period. After the review exercise, if modification of the scheme is considered not necessary, the existing registrations will be extended automatically.

4 Testing Standard

Statutory Requirement

- 4.1 The flushing valve of water closet shall be tested in accordance with the requirements as specified in relevant Waterworks Regulations and comply with the standards specified for the water closet valve by the Water Authority. Upon the completion and compliance with the test(s), the approval for the water closet flushing valve shall also be obtained from the Water Authority prior to the WELS application.

Scheme Requirements

- 4.2 The water closets are proposed to be tested to BS EN 997:2012+A1:2015 for the following parameters:

For all types of water closets:

- (a) Flush Volume - Full Flush
- (b) Flush Volume - Reduced Flush (for dual flush water closet only)

For toilet suite, water closet pan only (to be tested with a flushing cistern) and combination of a water closet and cistern:

- (c) Solid Discharge for Maximum Flush;
- (d) Paper discharge for reduced flush volume (for dual flush water closet only);
- (e) Liquid Contaminant Dye Retention; and
- (f) Wash of Bowl

5 Labelling System

- 5.1 Under this scheme, if the Grading Type WELS is adopted for water closets, the water closets would be rated to the different grades in accordance with the flushing test results and subject

to the compliance with other statutory and performance requirements mentioned in Section 6 below. The presentation of the grades under the Grading Type labelling scheme is proposed to be the similar presentation adopted in the WELS on other water consuming appliances.

- 5.2 If the Recognition Type WELS is adopted, a verification water efficiency label would be allowed to be fixed to the water closets that have met the specified water consumption and are in compliance with the statutory and other performance requirements as mentioned in Section 6 below.

6 Statutory and Performance Requirements

Statutory Requirement

- 6.1 The flushing valve of water closets shall be tested in accordance with the requirements as specified in relevant Waterworks Regulations and comply with the standards specified for the flushing valve by the Water Authority. Upon the completion and compliance with the test(s), the approval for the water closet flushing valve shall also be obtained from the Water Authority prior to the WELS application.

Performance Requirements

- 6.2 Apart from the flush volume test, it is required to comply with the solid discharge for maximum flush test, paper discharge for reduced flush volume test (for dual flush water closet only), liquid contaminant dye retention test and wash of bowl test.

7 Requirements on Testing Laboratory

- 7.1 The testing would be carried out either by an independent testing laboratory or an accredited laboratory. WSD would accept the results and certificates issued by testing laboratories, which fulfill one of the following criteria as specified in Clause 7.2, 7.3 or 7.4.
- 7.2 The laboratory is accredited by the Hong Kong Accreditation Service (HKAS) for carrying out the tests stipulated in the WELS on water closets under the Hong Kong Laboratory Accreditation Scheme (HOKLAS) or a scheme with which HKAS has concluded a mutual recognition agreement; and the results are issued in a test report or certificate bearing the accreditation mark.
- 7.3 A laboratory which achieves HOKLAS accreditation (or is accredited by a scheme with which

HKAS has concluded a mutual recognition agreement) for laboratory testing of water consuming appliances other than the tests stipulated in the WELS on water closets, and the laboratory can demonstrate their capability of carrying out tests on water closets in accordance with the required technical standards.

- 7.4 An in-house laboratory fulfills the criteria listed below:
- (a) Self-declaration by the manufacturer, importer or other related parties that the operations of their in-house laboratory follow the requirements of ISO/IEC 17025; **and**
 - (b) The manufacturer or importer or other related parties is currently operating according to a recognized international quality system (such as ISO 9001); **and**
 - (c) The manufacturer's or importer's or other related parties' in-house laboratory has been successful in carrying out tests on water consumption appliances and where these tests have been evaluated and certified by internationally recognized third party certification organisations.

8 Scheme Participation Process

8.1 Invitation

All manufacturers, importers and other related parties in the water closet business will be welcome and encouraged to participate in the scheme. For known manufacturers and importers, invitation letters will be issued to them inviting to join the scheme. However, any manufacturers and importers may submit their applications for registration no matter whether they are invited or not.

8.2 Application Process

Applicant can submit formal application by means of an application letter through mail, facsimile or electronic mail. In order to ensure effective implementation of the scheme, the applicant must be committed to fully comply with the duties, responsibilities and obligations set out in this scheme. A proforma letter of application detailing the aforesaid duties, responsibilities and obligations and the information required for submission with the application will be attached to the scheme document for applicant's use. To facilitate the application process, the application form would be made available at WSD's website for downloading.

8.3 Acceptance or Rejection of Application

On receipt of the application, WSD will verify whether the water closet under application meets the performance requirements based on the submitted data. In accordance with Grading

Type of WELS, WSD will rate the grade of the water closet according to the water consumption and performance test results. If Recognition Type WELS is adopted, WSD will verify whether the water closet meets the water efficiency requirement.

If the application is accepted, WSD will notify the participant of the result in writing within **17 working days** upon receipt of all necessary information requested. The participant will then be allowed to affix the water efficiency label onto the “registered” water closet. Both the manufacturer and importer of the registered water closet should ensure that the water efficiency label is correctly printed and affixed/printed on the water closet or its packing in accordance with the requirements specified in the scheme. Similar to the WELS on water consuming appliances, a simplified version label design will be provided to facilitate the participant to affix it to the water closet in case the full version is too large to do so. However, the affixation of the simplified version label to the water closets is optional.

If the application is rejected, WSD will issue the notification letter within **17 working days** upon receipt of all necessary information requested.

9 Compliance Monitoring and Inspection

9.1 Inspection Approach

To uphold the credibility of the scheme and to maintain continuous confidence of the consumers, compliance check on water efficiency labels on those water closets participating in the scheme will be required. Also, to avoid the unsatisfactory situation that non-participating parties taking advantage of the scheme by using unauthorized labels, suitable form of inspection will be carried out on water closets which have not been registered under the scheme. The inspection may be conducted under the mode of random sampling.

Moreover, registered water closets shall also be randomly selected for testing by an accredited laboratory appointed by WSD to ensure the technical and performance data submitted by the participants under the scheme requirements as mentioned in Clauses 4.1 and 4.2 are correct.

9.2 Remedial Actions

Participants will be requested to take immediate remedial action and report the action taken if non-compliance is found on their water closets.

If a registered water closet carrying water efficiency label is found not complying with the standard as mentioned in Clauses 4.1 and 4.2, the participant will be requested to repeat the

tests at his own costs by an agreed testing laboratory.

If non-compliance is confirmed and no remedial action is taken by the applicant, WSD may order it be de-registered from the scheme. Once a water closet is de-registered, it is not allowed to affix/print a Label to it or its packing. The participant shall remove all Labels from the de-registered water closet and/or its packing within three months from the notice. Failure to remove the WELS label from the de-registered water closet after WSD has withheld its authorization for using such label may contravene the relevant Ordinances.

9.3 Inspection Officers

Inspecting officers would be authorized to carry out compliance monitoring and inspection. The officers will carry proper identification cards that will be produced on request during their inspection operations. However, the officers will not inform the participants in advance of their intended inspection operation. It is the participants' duty to allow the inspecting officers to gain access to their premises to carry out inspection. Inspections will normally be carried out at the retail outlets and showrooms. Where necessary, inspection will also be done at warehouses.

10 Legal Provisions

10.1 This is a voluntary scheme. However, a participant who abuses the scheme by giving false information on a label may contravene provision of the Trade Description Ordinance.

10.2 No one could take advantage of the scheme by using the label on his water closet without authorization of WSD as that may constitute an infringement of copyright under the Copyright Ordinance.

10.3 Department of Justice was consulted on the above legal provisions during the development of the WELS on Showers for Bathing and the application of the above Ordinances was found appropriate.

11 Complaints and Appeals

11.1 Complaints Handling Procedure

WSD will be responsible for dealing with complaints from participants and other parties against matters related to the Scheme.

WSD shall ensure that complaints are properly recorded and handled without undue delay. WSD shall carry out investigation on complaints and reply to them within a reasonable time. For complaints that require site inspection and laboratory test, the complainant shall be notified through an interim reply. WSD shall inform the complainant of the result or decision made on the complaint.

11.2 Appeal Procedure

A participant may appeal against the decision or action taken by WSD in writing to the Director of Water Supplies (DWS) stating the reason for the appeal.

The DWS may decide to suspend the decision or action taken by the Department from the day on which the appeal is made until such appeal is disposed of, withdrawn or abandoned unless such suspension would, in the opinion of the DWS, be contrary to public interest.

The DWS may, by notice to the appellant, require the appellant to attend meeting(s) with him or his representatives and provide documents and give evidence relevant to the appeal. The DWS shall notify the appellant of his decision and reasons for it. The decision will be final.

12 Maintenance of Scheme

12.1 To ensure that the Scheme can continue to operate effectively and efficiently, the Scheme will be maintained as follows:

- (a) Continuous updating of the lists of water closets registered in the Scheme as follows:
 - (i) registered water closets with details such as registration numbers in the Scheme, dates of registration, water flush volume per cycle data, performance data, makes, models and other related information; and;
 - (ii) manufacturers, importers or other related parties of the registered water closets with details such as addresses, telephone numbers, e-mail addresses, etc.
- (b) Periodic review of the testing methodologies, procedures for registration application and compliance monitoring etc.
- (c) Continuous evaluation of the effectiveness of the Scheme and assessment of what changes are necessary.

MAY 2017

Overseas WELS on Water Closets

Country / Region	Voluntary Scheme	Mandatory Scheme	Label Type	Water Efficiency Grading	Test Parameters and Other Requirements
Australia	-	Under implementation	Grading type with "☆" star	<p style="text-align: center;"><u>One Star</u> Full flush ≤ 9.5 litres, Half flush ≤ 4.5 litres, Average flush ≤ 5.5 litres</p> <p style="text-align: center;"><u>Two Stars</u> Full flush ≤ 9.5 litres, Half flush ≤ 4.5 litres, Average flush ≤ 4.5 litres</p> <p style="text-align: center;"><u>Three Stars</u> Full flush ≤ 6.5 litres, Half flush ≤ 3.5 litres, Average flush ≤ 4.0 litres</p> <p style="text-align: center;"><u>Four Stars</u> Full flush ≤ 4.7 litres, Half flush ≤ 3.2 litres, Average flush ≤ 3.5 litres</p> <p style="text-align: center;"><u>Five Stars</u> Full flush ≤ 4.7 litres, Average flush ≤ 3.0 litres</p> <p style="text-align: center;"><u>Six Stars</u> Full flush ≤ 4.7 litres, Average flush ≤ 2.5 litres</p>	<p><u>AS 1172.1:</u> a) Full-flush - paper discharge test b) Reduced-flush - paper discharge test c) Solids discharge test d) Leakage and capacity test e) Splash test f) Wetting test g) Reduced-flushed liquid contaminant test</p> <p><u>AS 1172.2:</u> h) Distortion and leakage tests i) Endurance test (outlet valve) j) Endurance test (inlet valve) k) Discharge tests l) Flush pipe restrictor setting</p> <p><u>ATS 5200.021:</u> m) Flushing performance n) Watertightness</p> <p><u>ATS 5200.020:</u> o) Flushing performance p) Watertightness</p> <p><u>ATS 5200.030:</u> q) Hydraulic strength test r) Endurance test</p>
Japan	Under implementation (Eco Mark)	-	Recognition type	Flush water ≤ 6.5 litres	<p><u>Eco Mark Product Category No. 116 (low tank type)</u> - Flushing and discharging performance (JIS A5207)</p>

DRAFT

Country / Region	Voluntary Scheme	Mandatory Scheme	Label Type	Water Efficiency Grading	Test Parameters and Other Requirements
					<ul style="list-style-type: none"> - Transportation performance <p><u>Eco Mark Product Category No. 116 (flush-valve type)</u></p> <ul style="list-style-type: none"> - The spout performance (JIS B2061) - Flushing and discharging performance (JIS A5207) - Transportation performance <p><u>Eco Mark Product Category No. 116 (flush-valve built-in type)</u></p> <ul style="list-style-type: none"> - Flushing and discharging performance (JIS A5207) - Transportation performance
New Zealand	-	Under implementation	Grading type with "☆" star	<p style="text-align: center;"><u>One Star</u></p> <p>Full flush ≤ 9.5 litres, Half flush ≤ 4.5 litres, Average flush ≤ 5.5 litres</p> <p style="text-align: center;"><u>Two Stars</u></p> <p>Full flush ≤ 9.5 litres, Half flush ≤ 4.5 litres, Average flush ≤ 4.5 litres</p> <p style="text-align: center;"><u>Three Stars</u></p> <p>Full flush ≤ 6.5 litres, Half flush ≤ 3.5 litres, Average flush ≤ 4.0 litres</p> <p style="text-align: center;"><u>Four Stars</u></p> <p>Full flush ≤ 4.7 litres, Half flush ≤ 3.2 litres, Average flush ≤ 3.5 litres</p> <p style="text-align: center;"><u>Five Stars</u></p> <p>Full flush ≤ 4.7 litres, Average flush ≤ 3.0 litres</p>	<p><u>AS 1172.1:</u></p> <ul style="list-style-type: none"> a) Full-flush - paper discharge test b) Reduced-flush - paper discharge test c) Solids discharge test d) Leakage and capacity test e) Splash test f) Wetting test g) Reduced-flushed liquid contaminant test <p><u>AS 1172.2:</u></p> <ul style="list-style-type: none"> h) Distortion and leakage tests i) Eudurance test (outlet valve) j) Eudurance test (inlet valve) k) Discharge tests

DRAFT

Country / Region	Voluntary Scheme	Mandatory Scheme	Label Type	Water Efficiency Grading	Test Parameters and Other Requirements
				<u>Six Stars</u> Full flush \leq 4.7 litres, Average flush \leq 2.5 litres	l) Flush pipe restrictor setting <u>ATS 5200.021:</u> m) Flushing performance n) Watertightness <u>ATS 5200.020:</u> o) Flushing performance p) Watertightness <u>ATS 5200.030:</u> q) Hydraulic strength test r) Endurance test
Singapore	-	Under implementation	Grading type with "√" star	For dual-flush low capacity flushing cisterns <u>Good (One Tick)</u> Dual Flush: 4 < full flush \leq 4.5 litres 2.5 < reduced flush \leq 3 litres <u>Very Good (Two Ticks)</u> 3.5 < full flush \leq 4 litres 2.5 < reduced flush \leq 3 litres <u>Excellent (Three Ticks)</u> full flush \leq 3.5 litres (++) reduced flush \leq 2.5 litres ++ PUB to prescribe additional test(s) to be carried out for the Dual-Flush Low Capacity Flushing Cisterns with flush volumes below 3.5 litres (full flush).	<u>SS 574:Part 1 :2012 and Part 2 (dual flush water closets flushing cisterns)</u> a) Materials & Design/Dimension b) Marking c) Front Thrust Test (except conceal cistern) d) Colour Fastness Test (For plastic cistern except conceal cistern) e) Distortion Test f) Impact Test (For plastic cistern except conceal cistern) g) Leakage Test h) Torque Test i) Volume Of Discharge per Flush (for full & reduced flush) j) Water Line k) Water Inlet Valve l) Hydraulic Test m) Endurance Test (for full & reduced flush)

Country / Region	Voluntary Scheme	Mandatory Scheme	Label Type	Water Efficiency Grading	Test Parameters and Other Requirements
					n) Flushing Tests o) Load Test On Operating Mechanism (for full & reduced flush) p) Flush Button Design q) WC Drainline Transportation Test (For cisterns with full flush volume of less than 3.5 litres/flush) <u>BS1212: Part 4, Section 3 and Section 4 (except Clauses 18,19 and 20.1)</u>
Taiwan	Under implementation	-	Recognition type (省水標章) (with two levels)	<p style="text-align: center;"><u>Gold Level</u></p> Single flush: flush volume < 4.8 litres or Dual-flush: Full flush < 4.8 litres Half flush < 3 litres <p style="text-align: center;"><u>Ordinary Level</u></p> Single flush: flush volume < 6 litres or Dual-flush: Full flush < 6 litres Half flush < 3 litres	<u>CNS 3221 and JIS A5207</u> a) 洗淨試驗 b) 排水性試驗 c) 漏水試驗 工業技術研究院測試方法 d) 尿液殘留試驗 <u>ASME A112.19.6</u> e) 搬送距離試驗
UK	European Water Label Under implementation by the Bathroom Manufacturers Association	-	Recognition type (with symbolic indication of flush volume)	The measured volume shall not exceed the claimed nominal value of any quoted flush volume	<u>WCs suites</u> Class 2 of BS EN 997:2003 <u>Independent flushing cisterns</u> Class 2 of BS EN 14055

DRAFT

Country / Region	Voluntary Scheme	Mandatory Scheme	Label Type	Water Efficiency Grading	Test Parameters and Other Requirements
US	Under implementation with WaterSense Partnership programme by US EPA	-	Recognition type	Effective flush volume \leq 1.28 gallons (4.8 liters)	<u>ASME A112.18.1/CSA B125.1</u> - Effective flush volume ASME A112.19.2/CSA B45.1 and ASME A112.19.14 (dual-flush toilet only) - Performance test